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Identification of an Egyptian Chemical Weapon Employed in the Yemen at Kitaf in January 1967

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IDENTIFICATION OF AN EGYPTIAN CHEMICAL WEAPON EMPLOYED IN THE YEMEN AT KITAF IN JANUARY 1967

INTRODUCTION

1. Since early 1963 there have been numerous reports that the United Arab Republic (UAR) has employed chemical warfare (CW) weapons in attacks on selected targets in the Yemen. The purpose of this report is to identify the weapon dropped at Kitaf early in January 1967. The type of chemical weapon was different from those previously used by the Egyptians, the filling being much more toxic. Because this area was close to the Saudi Arabian border more Intelligence became available than from previous or subsequent Egyptian CW air strikes. The weapon used at Kitaf was also dropped during some later CW operations until the UAR forces withdrew from the Yemen in October 1967.

GENERAL

Bomb fragments

2. From time to time before January 1967 bomb debris had been examined but no positive weapon identification had been possible. This lack of identification has been caused by two circumstances: the field collectors have not been sure what to look for, and the debris has consisted of a confusing mixture of pieces of HE, incendiary and CW weapons.

Chemical aspects

3. Reports of the Kitaf raid indicated high volatility of the CW agent and collectors were not able to reach the target areas to seal debris into plastic bags sufficiently quickly to yield meaningful chemical tests. In consequence the chemical nature of the filling has not been firmly established.

Mixed weapon raids

4. The difficulties of identifying earlier CW weapons have been aggravated by the UAR practice of using HE, incendiary and CW weapons together on one operation or by their closely following up CW attacks by HE and incendiary raids. These practices may have been deliberate attempts to frustrate CW weapon identification. Indeed, it was probably no accident that on 15th May, 1967, they attacked a clearly marked International Red Cross convoy with HE bombs while it was on its way to inspect the Harran area which had been attacked on 11th May, 1967, with chemical weapons.

THE RAID ON KITAF, 5th JANUARY, 1967

The circumstances

5. Eyewitness reports of the raid on Kitaf on 5th January, 1967, described an improved attack technique. Target indicators, smoke bombs, were dropped to determine the wind speed and direction. No incendiary or HE weapons were dropped on this raid and no deaths were reported from burns, blast, or shrapnel. Apart from numerous livestock deaths some 120 people were killed and 90 injured. The accuracy of delivery was evidence of good weapon ballistics.

Photographic evidence

6. The photographs at Figs 1, 2 and 3 were taken at Kitaf shortly after the raid. They feature the heavy blunt nose of a bomb and some large body fragments. The bomb crater is shallow, indicating instantaneous fuzing and a small HE content. The bomb fragments were all within 10–15 yds of the craters.

A source report

7. The sketch at Fig. 4 was made by a source with a military background, some 24 hours after the raid. He reported that all the heavy nose section fragments were found in the craters and showed the same type of fracture, being burst open with radial cracks like flower petals. The nose section, he said, was not ogival but blunt, being a simple dished or part-spherical shape. The (nose) material was steel approximately 2–3 ins thick at the centre, tapering to about 1 in. thick at the outer diameter where the nose was welded to the centre section. In the centre of the nose was mounted the arming vane and fuze mechanism. The bomb centre section, approximately 12–14 ins in diameter, was of steel roughly quarter of an inch thick. He also noticed that towards the nose the casing was marked with a red band with a greeny-yellow band about 2 ins aft. The normal conical tail section carried a cylindrical fin attached by four vanes with intermediate stiffening vanes inside the fin. He saw no obvious indications of plugs or filling holes but there was a hexagonal nut on the tail by the fin.

DISCUSSION

UAR air weapons

8. The UAR Air Force is equipped with aircraft of Soviet manufacture, and it is supplied with Soviet air weapons. Bombs known to have been used by the UAR in the Yemen have included HE (FAB) and incendiary (ZAB) in the 100–500 kg. (220–1,100 lb.) range. The photograph at Fig. 5 is of an early (pre-1946) Soviet ZAB-100-114 incendiary bomb.

9. The following table compares the Kitaf bomb with the ZAB-100-114:

	Kitaf bomb	*ZAB-100-114*
Length	—	39 ins
Diameter	12–14 ins (estimated from fragments)	11 ins
Body thickness	¼ in. (approx.)	12 mm.
Construction	*Nose cone* —heavy stamped steel *Main body section* —cylindrical *Tail section* —conical	*Nose cone* —heavy stamped steel *Main body section* —cylindrical *Tail section* —conical
Fuze pockets	Nose only	Nose only

10. The estimated diameter of the Kitaf bomb approximates to that of the ZAB bomb, and the nose and body construction of both bombs is identical. The one outstanding difference between the bombs is the drum-type tail of the Kitaf bomb (Fig. 4) in comparison with the box-type tail of the ZAB bomb (Fig. 5). This difference is explained by the fact that between 1946 and 1954 the design of Soviet aircraft bomb tails was changed from box to drum configuration and the Kitaf bombs could therefore have been manufactured after 1946. The drawing at Fig. 6 is of an old type ZAB-100-114 bomb with the box-type tail.

Bomb characteristics

11. The construction of the ZAB-100-114 bomb with its flat nose and thin steel body is ideal for use as a chemical weapon. A thick-cased bomb would not be suitable for use in the CW role as it would need a detonating charge to burst the case, with consequent loss of efficiency in dissemination of the contents. However, a fuze and bursting charge would merely rupture the case. The villagers of Kitaf stated that the sound of the bombs was not as loud as the sound heard during HE raids, which is consistent with the use of bursting charges. Furthermore, it is reasonable to assume that the Egyptians would prefer to use a Soviet bomb case such as the ZAB-100-114 rather than one of their own manufacture, because it would be compatible with the IL-28 BEAGLE release slips and would accept Soviet fuzes and Soviet fuze setting control links.

Bomb markings

12. Source has described the Kitaf bomb as being marked with two bands: a red one on the nose and a greenish-yellow one on the body. Our information, from several reliable sources, is that Soviet aircraft *incendiary* bombs of the ZAB type have *one* colour band, red, on the nose only. One source has also declared that Soviet aircraft chemical bombs have a yellow band on the nose. As the Egyptians were also using in the Yemen Soviet-supplied ZAB bombs for their original (incendiary) use it seems very unlikely that they would be content to leave an apparent incendiary marking on a chemical bomb. The simplest method of modification would have been to add another band, on the body, leaving the red one on the nose. There is no evidence, anyway, of Soviet bombs being supplied to the UAR as toxic chemical weapons.

CONCLUSIONS

13. It is concluded that the UAR used CW weapons for the raid on Kitaf on 5th January, 1967, in the form of refilled Soviet ZAB-100-114 bombs.

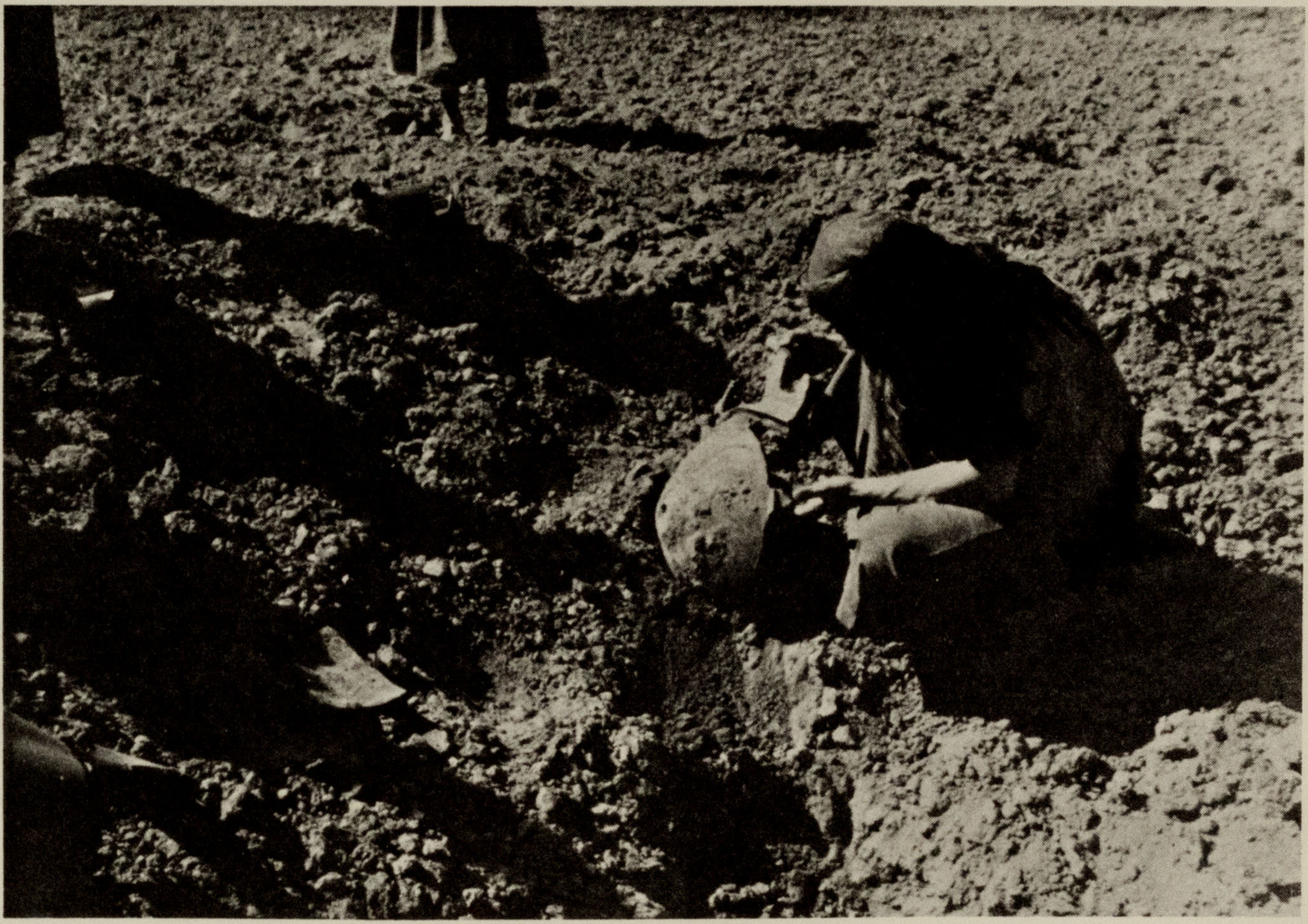


FIG.1. KITAF 5th JANUARY 1967

NOTE HEAVY SPHERICAL NOSE
AND LARGE BOMB FRAGMENTS

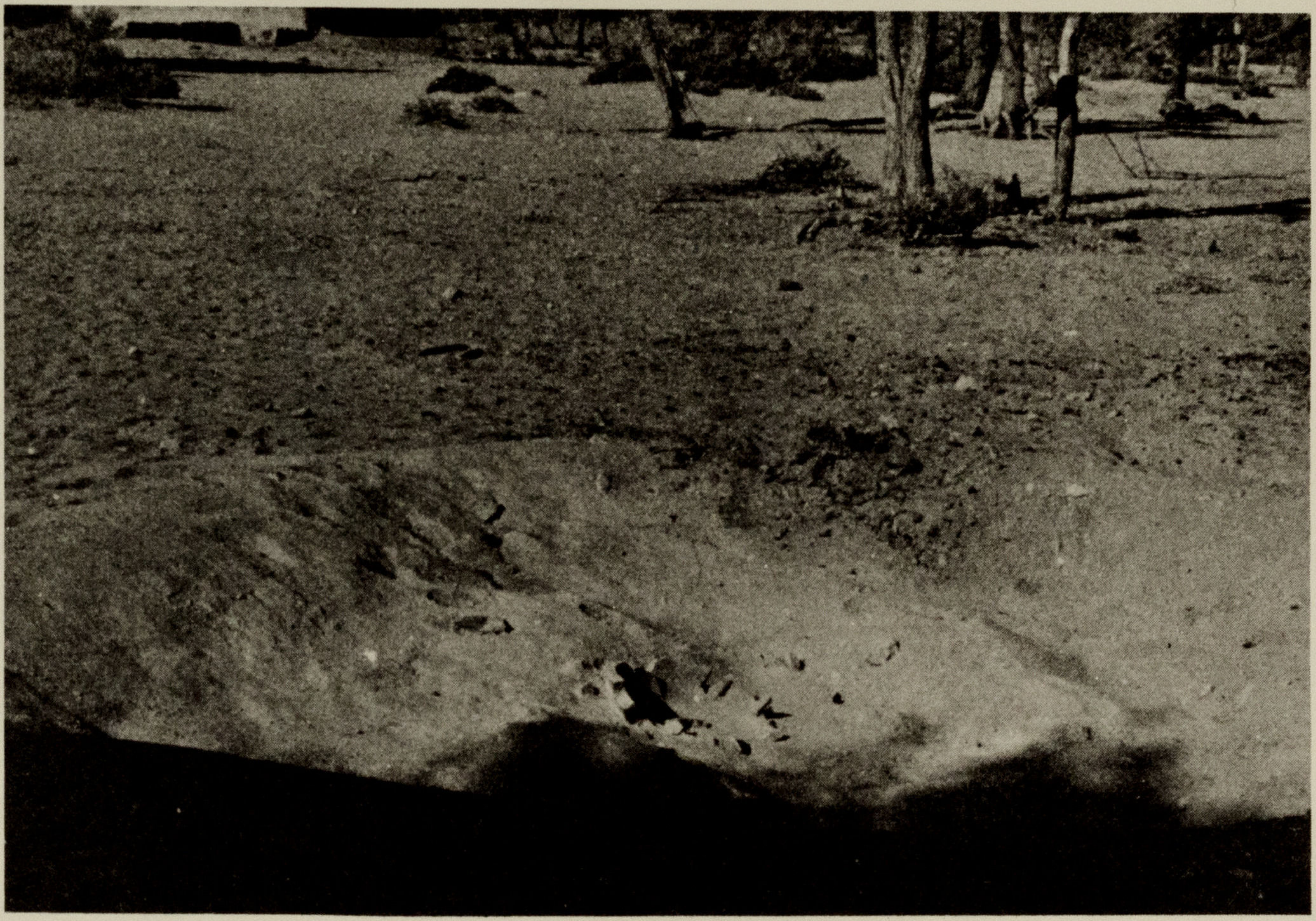


FIG 2. KITAF 5th JANUARY 1967

NOTE SHALLOW BOMB CRATER AND
LARGE SPHERICAL NOSE FRAGMENT

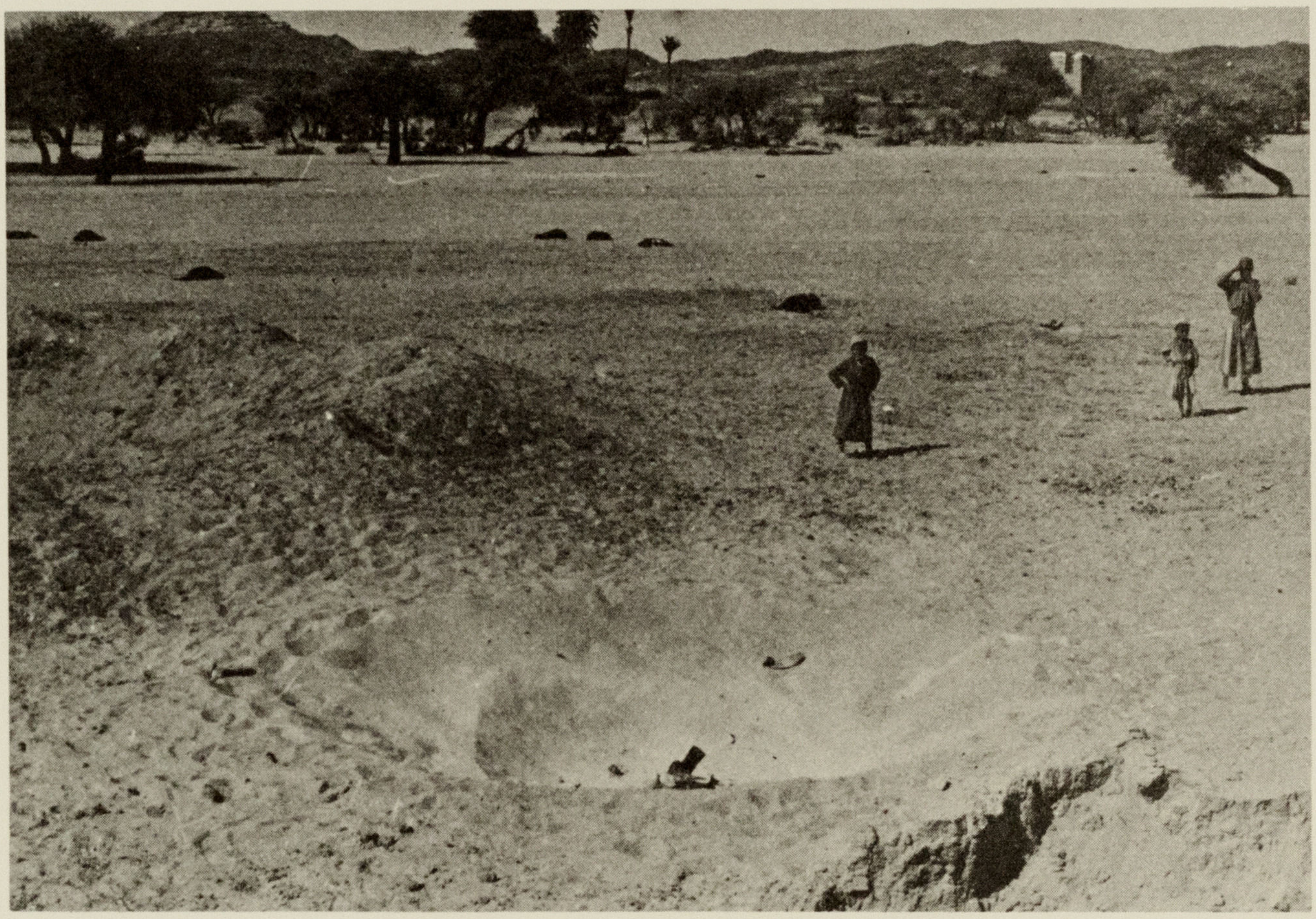


FIG 3. KITAF 5th JANUARY 1967

NOTE LARGE BOMB FRAGMENTS
AND DEAD CATTLE IN BACKGROUND

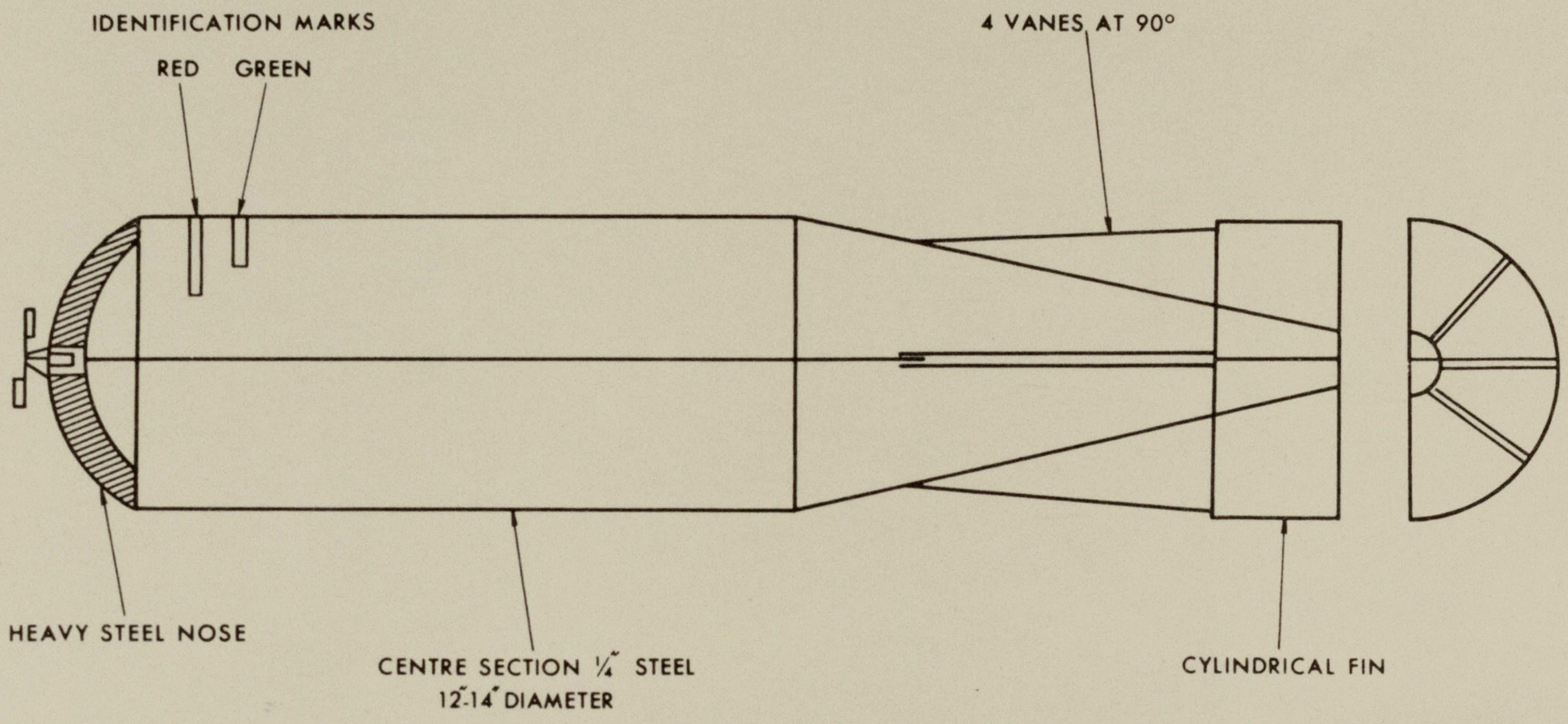


FIG 4. KITAF GAS BOMB - GENERAL DIMENSIONS

PREPARED FROM A SKETCH DRAWN FROM MEMORY BASED ON RECONSTRUCTION OF BOMB FRAGMENTS

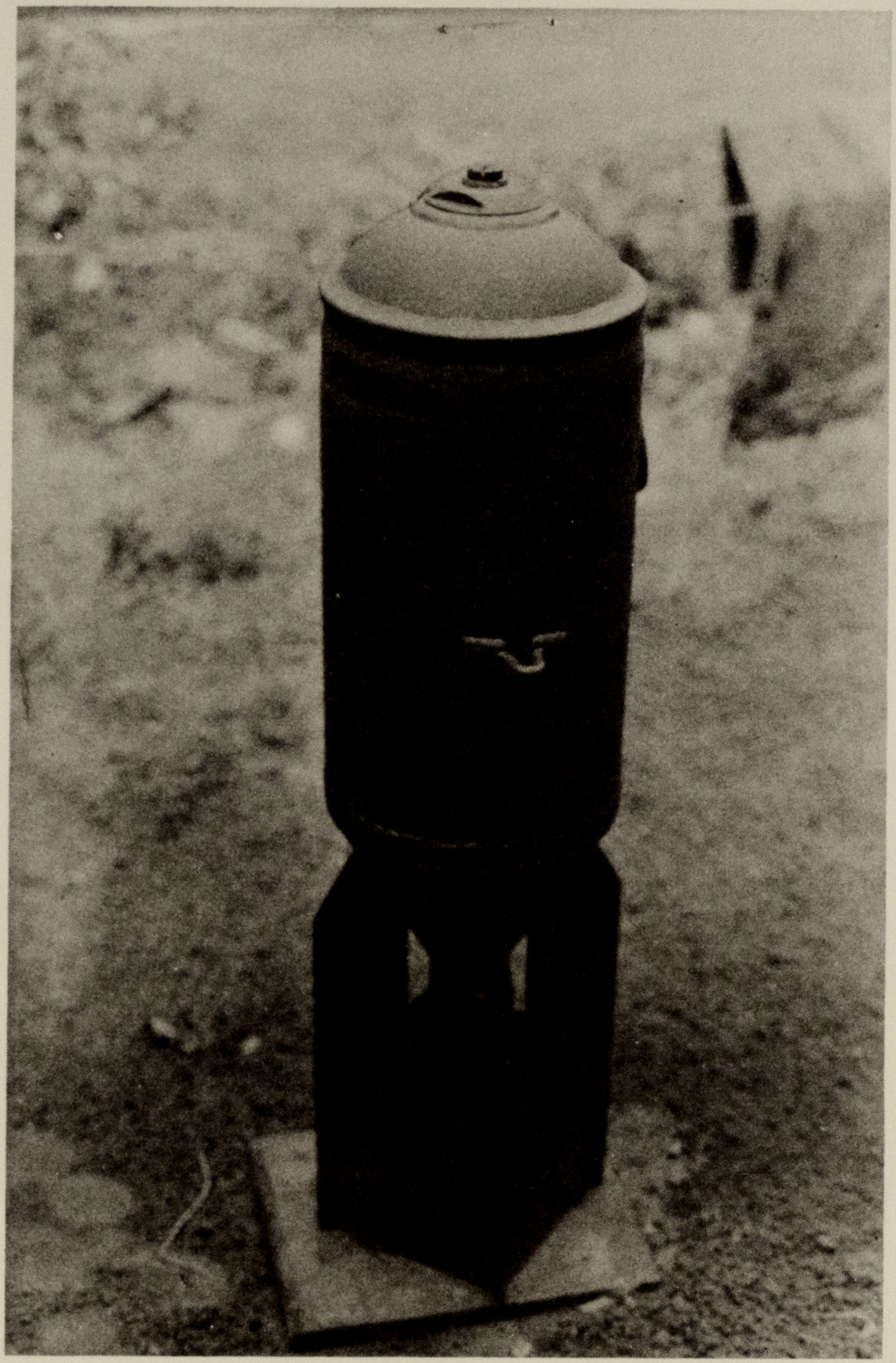
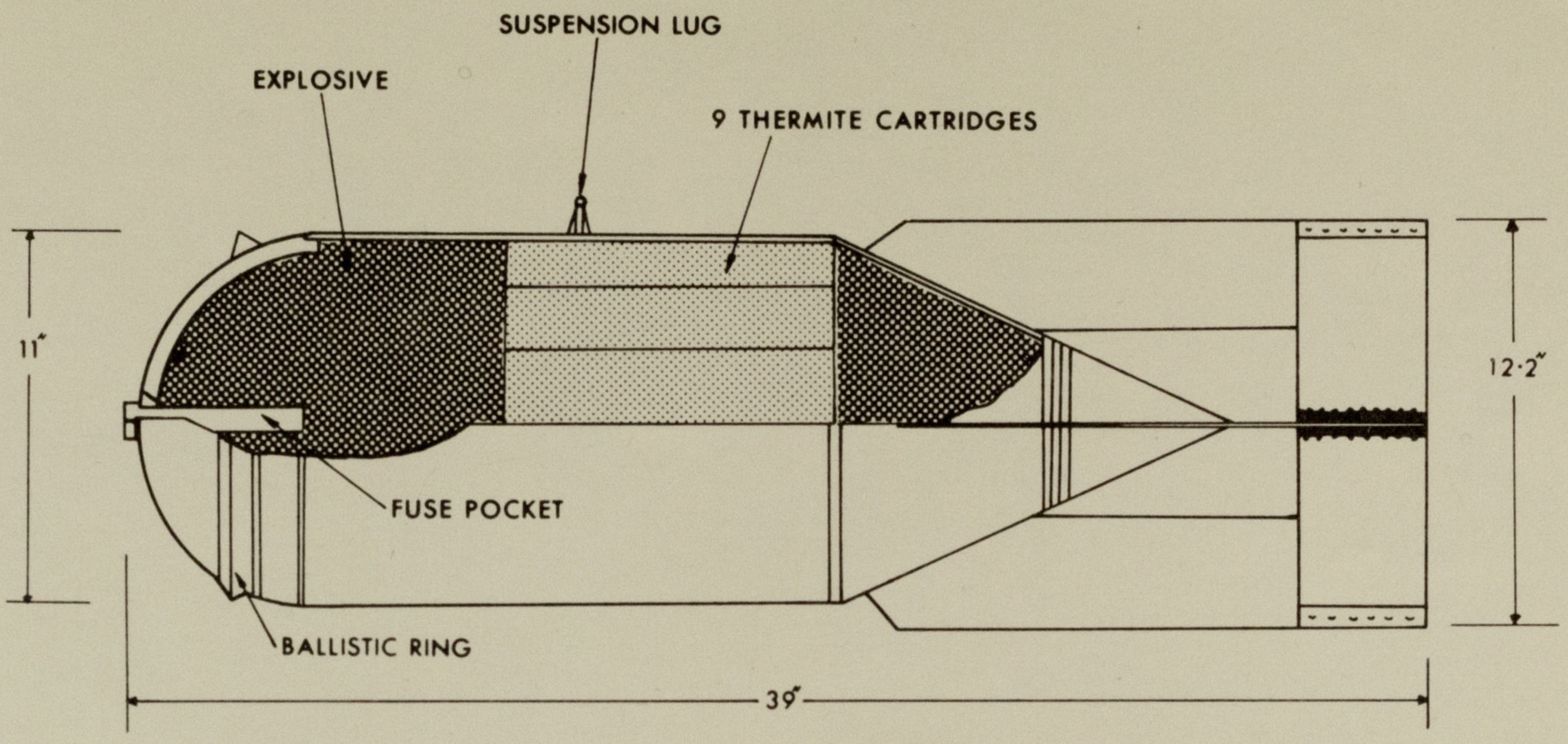


FIG 5. SOVIET 250 lb INCENDIARY BOMB
(PRE 1946)



1. Designation,	ZAB - 100 - 114
2. Charge/Weight Ratio	50%
3. Body Length	33.4 inches
4. Overall Length	39 inches
5. Maximum Diameter	12.2 inches
6. Body Diameter	11 inches
7. Total Weight	250 lbs
8. Fuzing	Nose APUV-1 or VDV

9. Remarks

(a) The body is formed of a stamped steel nose, a cylindrical main body section of 12mm plate and a conical tail section. The nose and tail sections are welded to the main body section. The nose section has a ballistic ring welded to it, and contains an exploder tube into which is screwed the fuse. The bomb contains approximately 62 lbs of explosive and 9 thermite cartridges weighing about 5 lbs each.

(b) The tail consists of four sheet metal fins welded to the tail cone. Sheet metal braces are rivitted between the fins to form a box.

FIG 6. SOVIET ZAB-100-114 INCENDIARY BOMB (PRE 1946)

DRY FILL WEIGHT 250lb